system and modern fermentation technologies.

(c) Some significant achievements include: development of diagnostic kits, new vaccine strains, drug delivery systems, basic structural studies, creation of repositories of important micro-organisms and training of human resource. A new drug formulation has been transferred to industry for the use in curing systemic fungal infection and leishmaniasis. An oral recombinant candidate cholera vaccine strain has been developed; nucleic acid probes have been developed to detect drug resistant strains of *M. tuberculosis;* tests have been developed for diagnosis of HIV using peptides/recombinant proteins, western blot.

(d) Looking at the disease burden, trends of emerging and re-emerging infections, the future plan of work would be related to the molecular epidemiology, drug development, small therapeutics, recombinant vaccines , genetic medicine and molecular pathogenesis including genome mapping, etc.

Research in Malaria

*79. SHRI JAGIR SINGH DARD:
DR. SHRIKANT RAM-CHANDRA JICHKAR:

Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) how is the project undertaken by the Department of Biotechnology known as "Research on Malaria for development of diagnostics and maintenance of parasite bank" functioning;

(b) what has been done uptill now under this project; and

(c) what are the future plans?

THE MINISTER OF STATE OF THE MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTER OF STATE OF THE MINISTRY OF POWER (SHRI YOGINDER K. ALAGH): (a) Considering the disease burden of Malaria as a major public health problem in the country, and recommendations of many expert meetings, the Task Force of the department recommended a project entitled "Reasearch on Malaria for development of diagnostics and maintenance of parasite bank" which was funded during March, 1992 to Malaria Research Centre, Delhi.

(b) Experts have assessed the achievements of the project. The malaria parasite bank serves as a National Resource Centre with a variety of human and non-human plasmodia. At present the facility holds well characterised 176 isolates of *Plasmodium falciparum,* 135 *P. vivax,* 3 simian, 10 rodent and 2 avian parasites. *In vitro* cultivation, cryopreservation and revival methods have been fully standardised. More than 124 laboratories/scientists have been supplied parasite and other related biological materials. Monoclonal antibody against circum sporozoite protein has been produced for vector incrimination works. Primers are available to distinguish sibling species of mosquitoes. This will help in understanding the biology of vectors and how they influence the transmission. Scientists have successfully cultured the hepatic stages of human malaria parasite (*P. vivax*) for the first time in the country which will help in providing antigenic materials for research on immunology and immuno-prophylaxis. Short-term cultivation of erythrocytic stages of *P. vivax* has been achieved. Complete cycles of rodent malaria parasites both in animals and in mosquitoes are being maintained for testing the efficacy of anti-malarials and immunological studies. Two new potential chemotherapeutic agents have shown high achizontocidal activities. Cloning experiments have provided very useful information on the phenomenon of parasite resistance in the field population— an emerging problem of the country. Twenty two (33.3%) of the isolates were found to be resistant to chloroquine out of 62 isolates tested from

the recent malaria outbreak in Gurgaon, Haryana.

(c) Collection supply and maintenance of the parasites are continuous activities. further activities to be pursued include: Characterisation of *P. falciparum* and *P. vivax* isolates, tests to be carried out with more liver cell lines for the cultivation of hepatic stages of *P. vivax* and *P. falciparum*, for using this in screening of drugs, for ultrastructural studies of exo-erythrocytic stage, for isolation of antigens from infected hepatocytes for immunological studies, continuous cultivation of *P. vivax*, animal models for *P. vivax* and *P. falciparum*, maintenance of non-human malaria parasites for screening of anti-malarials and for immunobiological studies.

पावर ग्रिड कारपोरेशन ऑफ इंडिया द्वारा आमंत्रित निविदाएं

*80. **श्री राघवजी**: क्या विद्युत मंत्री यह बताने की कृपा करेंगे कि:

(क) क्या यह सच है कि पावर ग्रिड कारपोरेशन ने इमरजेन्सी रेस्टोरेशन सिस्टम क्रय करने के लिए अलग से खुले टेंडर आमंत्रित नहीं किये हैं;

(ख) यदि हां, तो उसके क्या कारण हैं;

(ग) क्या यह भी सच है कि विक्रेता को उक्त प्रणाली की ऊंची कीमत दी गई थी; और

(घ) उपरोक्त मशीनें किस कम्पनी से खरीदी गई थी और उपर्युक्त अनियमितताओं के कारण कारपोरेशन को कितनी हानि उठानी पड़ी?

विद्युत मंत्रालय के राज्य मंत्री तथा विज्ञान और प्रौद्योगिकी मंत्रालय के राज्य मंत्री (श्री योगेन्द्र कुमार भगतराम अलघ): (क) से (ग) विन्ध्याचल-धूले, नाथपा-झाकरी एवं किशनपुर-मोंगा पारेषण प्रणालियों के लिए पावर ग्रिड कारपोरेशन आफ इंडिया लि० द्वारा नौ टावर पैकेजिज हेतु आमंत्रित की गई निविदाओं के घटकों में आपातकालीन मुरम्मत प्रणाली (ईआरएस) भी एक घटक थी। समग्र पैकेज के लिए उद्धरित समग्र कीमत के आधार पर बोलियों का मूल्यांकन/तुलना की गई थी तथा यह कार्य प्रत्येक मद की दर के आधार पर विचार करके नहीं किया गया था। समग्र पैकेज के लिए न्यूनतम मूल्यांकित बोलीदाताओं को ठेके दिए गए थे।

टावर पैकेजिज के लिए पांच प्रमुख ठेकेदारों नामशः मैसर्स एस०ए०ई० नई दिल्ली (लीडपार्टनर)। के०ई०सी०। मुम्बई (लीडपार्टनर)। ए०बी०ई०एन०जी०ओ०ए०, स्पेन (लीडपार्टनर) ज्योति स्ट्रेक्चर्स लि० मुम्बई और कोवरा। स्पेन को दिए गए ठेके का ई आर एस० प्रावण भी एक अंग था इन ठेकदारों के ठेकों में मैसर्स विट्रेसे। यू एस ए की 10 ई आर एस और मैसर्स कोवरा स्पेन की 2 ई आर एस शामिल थीं। पावरग्रिड द्वारा ईआरएस की सीधी खरीद नहीं की गई है।

(घ) प्रश्न उत्पन्न नहीं होता।

WRITTEN ANSWERS TO UNSTARRED QUESTIONS

Coal reserves of Jharia Coalfields

466. **SHRI PARMESHWAR KUMAR AGARWALLA**: Will the Minister of COAL be pleased to state:

(a) the total proved coal reserves of Jharia coal fields, coking and non-coking, separately;

(b) how much of these coal reserves are extractable by underground working or open cast mine;

(c) how many coal mines were working in Jharia coal fields at the time of nationalisation;

(d) how many are working now, area-wise;

(e) how many of the mines working at the time of nationalisation are now closed; and

(f) if so, the reasons therefor?

THE MINISTER OF STATE OF THE MINISTRY OF COAL (SHRIMATI KANTI SINGH): (a) As per Geological Survey of India (GSI) coal inventory on 1.1.1997 upto 1200 m. depth and including coal seams of thickness upto 0.9 m., the total proved coal reserves of Jharia Coalfields is 14,904.58 million tonnes. Out of this, the coking coal